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ABSTRACT

This study compared infants' responsiveness to modeling versus instruction and examined the issue of whether providing supplementary linguistic information makes modeling and instruction more or less effective. A total of 72 infants between 15 and 21 months of age participated in the study. Subjects were randomly assigned to conditions which included variance in (1) teaching method employed: either modeling or instruction; (2) linguistic description provided: none, action label, or action label plus object label; and (3) gender condition. Findings indicated that when the adult did not speak, modeling of a familiar task was more effective than a nonverbal gesture. However, when the adult provided a partial or complete linguistic description, asking infants to perform a familiar task was as effective as showing them what to do. When the infants were taught an unfamiliar task, modeling was significantly more effective in teaching a new skill to boys, but less effective for girls. It is concluded that infants use linguistic information as well as physical models to interpret events and to direct their responses as early as their second year. Although modeling is acknowledged to be a potent elicitor of behavior, the findings indicate that an explicit verbal instruction is also an effective method for teaching older infants. (Author/RH)

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INFANTS' RESPONSIVENESS TO MODELING VS. INSTRUCTION

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ABSTRACT

THE PURPOSE OF THIS STUDY WAS TO COMPARE INFANTS' RESPONSIVENESS TO MODELING VERSUS INSTRUCTION AND TO EXAMINE WHETHER PROVIDING SUPPLEMENTARY LINGUISTIC INFORMATION MAKES MODELING AND INSTRUCTION MORE OR LESS EFFECTIVE. A TOTAL OF 72 INFANTS BETWEEN 15 AND 21 MONTHS OF AGE WERE RANDOMLY ASSIGNED TO A TEACHING (MODELING VS. INSTRUCTION) METHOD BY LINGUISTIC DESCRIPTION (NONE VS. ACTION LABEL VS. ACTION PLUS OBJECT LABEL) BY GENDER CONDITION.

THE RESULTS SHOWED THAT WHEN THE ADULT DID NOT SPEAK, MODELING A FAMILIAR TASK WAS MORE EFFECTIVE THAN A NON-VERBAL GESTURE. HOWEVER, WHEN THE ADULT PROVIDED A PARTIAL OR COMPLETE LINGUISTIC DESCRIPTION, ASKING INFANTS TO PERFORM A FAMILIAR TASK WAS AS EFFECTIVE AS SHOWING THEM WHAT TO DO. WHEN THE INFANTS WERE TAUGHT AN UNFAMILIAR TASK, MODELING WAS SIGNIFICANTLY MORE EFFECTIVE IN TEACHING A NEW SKILL FOR BOYS AND LESS EFFECTIVE IN TEACHING A NEW SKILL FOR GIRLS.

THE FINDINGS OF THIS STUDY INDICATE THAT, AS EARLY AS THE SECOND YEAR OF LIFE, INFANTS USE LINGUISTIC INFORMATION AS WELL AS PHYSICAL MODELS TO INTERPRET EVENTS AND TO DIRECT THEIR RESPONSES. ALTHOUGH MODELING IS ACKNOWLEDGED TO BE A POTENT ELICITOR OF BEHAVIOR, THE STUDY HAS SHOWN THAT AN EXPLICIT VERBAL INSTRUCTION IS ANOTHER EFFECTIVE TEACHING METHOD FOR USE WITH OLDER INFANTS.

AIMS

1. COMPARE THE EFFECTIVENESS OF TWO COMMONLY USED TEACHING METHODS, I.E., MODELING AND INSTRUCTION (COMMAND) FOR FACILITATING PRETEND PLAY WITH TODDLERS IN A RELAXED PLAY SETTING WITH AN ADULT.
2. DETERMINE WHETHER MODELING VERSUS INSTRUCTION IS MORE EFFECTIVE FOR ENCOURAGING TODDLERS TO PERFORM FAMILIAR (CONVENTIONAL) PRETEND ACTIONS VERSUS NOVEL (COUNTER-CONVENTIONAL) PRETEND ACTIONS.
3. IF THE ADULT PROVIDES A LINGUISTIC DESCRIPTION OF THE PRETEND ACTION ALONG WITH THE DEMONSTRATION OR INSTRUCTION (POINTING GESTURES), ARE THE TODDLERS MORE LIKELY TO ENGAGE IN PRETEND PLAY THAN IF THE ADULT DID NOT SPEAK?
4. FURTHER, IS A PRECISE LINGUISTIC DESCRIPTION THAT CONTAINS A NOUN REFERENT TO DESCRIBE THE PRETEND FUNCTION OF A TOY MORE SALIENT THAN A SIMILAR DESCRIPTION THAT USES A PRONOUN INSTEAD OF THE NOUN REFERENT.
5. DOES THE TYPE OF TEACHING METHOD AND/OR LINGUISTIC DESCRIPTION FACILITATE A TODDLER'S ABILITY TO IDENTIFY THE ORIGINAL PRETEND OBJECT IN A DELAYED (15 MINUTE) CUED RECALL MEMORY TASK?
6. DO CHRONOLOGICAL AGE, MENTAL AGE, OR ON EXPERIMENTAL MEASURE OF COMPLIANCE ACCOUNT SIGNIFICANTLY FOR THE OBSERVED VARIANCE IN THE TODDLERS' PERFORMANCES?

METHOD

A TOTAL OF 72 NORMALLY DEVELOPING INFANTS BETWEEN THE AGES OF 15 AND 21 MONTHS OF AGE WERE TESTED. THE INFANTS WERE RANDOMLY ASSIGNED TO A TEACHING METHOD (MODELING VS. INSTRUCTION) BY LINGUISTIC DESCRIPTION (NONE VS. ACTION LABEL VS. ACTION PLUS OBJECT LABEL) BY GENDER CONDITION.

EACH INFANT WAS OBSERVED INDIVIDUALLY IN THE PRESENCE OF THE MOTHER AND THE EXPERIMENTER IN A TESTING ENVIRONMENT THAT WAS DESIGNED TO SIMULATE AN INFORMAL PLAY INTERACTION RATHER THAN A FORMAL TESTING SITUATION. THE MOTHER AND EXPERIMENTER SAT ON CUSHIONS FACING ONE ANOTHER WHILE THE TODDLER PLAYED WITH TOYS THAT WERE SCATTERED ON THE FLOOR BETWEEN THE ADULTS.

TRIAL 1: A 10 MINUTE TEACHING AND IMMEDIATE TEST TRIAL. THE EXPERIMENTER TAUGHT (MODELED OR INSTRUCTED) THE INFANT TO PERFORM TWO PRETEND ACTIONS, A FAMILIAR CONVENTIONAL PRETEND ACTION AND A NOVEL COUNTERCONVENTIONAL PRETEND ACTION. AN EXPERIMENTAL COMPLIANCE MEASURE WAS OBTAINED BY HAVING THE MOTHER ASK THE INFANT TO PUT THE TOYS AWAY AT THE END OF THIS TRIAL.

TRIAL 2: A 5-MINUTE FREE-PLAY TRIAL WITH NO TEACHING TO ASSESS GENERALIZED PRETENSE. ORIGINAL PRETEND OBJECTS WERE REPLACED WITH OTHER OBJECTS THAT WERE SIMILIAR IN SHAPE.

TRIAL 3: A 5-MINUTE FREE-PLAY TRIAL WITH NO TEACHING TO ASSESS DELAYED PRETENSE. ORIGINAL PRETEND OBJECTS WERE PRESENT ALONG WITH NEW DISTRACTOR TOYS. AT THE END OF THIS TRIAL, THE EXPERIMENTER ASKED THE INFANT TO IDENTIFY THE ORIGINAL PRETEND OBJECTS IN A DELAYED CUED MEMORY TASK.

DEPENDENT MEASURES INCLUDED THE FREQUENCIES OF IMMEDIATE, GENERALIZED, AND DELAYED PRETEND ACTIONS, AND THE RESULTS OF THE DELAYED CUED MEMORY TASK. CA, MA, AND COMPLIANCE WERE COVARIED WITH THE OBTAINED DEPENDENT MEASURES.

PRETEND TASKS

SET A: CONVENTIONAL PRETEND ACTION - PUT HAT ON HEAD.
COUNTERCONVENTIONAL PRETENSE - PUT CUP ON FOOT.

SET B: CONVENTIONAL PRETEND ACTION - DRINK FROM CUP.
COUNTERCONVENTIONAL PRETENSE - PUT HAT ON FOOT.

SAMPLE OF THE EXPERIMENTER'S BEHAVIOR FOR TEACHING UNFAMILIAR TASK: USING PARTY HAT AS A SHOE.

	TEACHING METHOD	
LINGUISTIC DESCRIPTION	MODELING	INSTRUCTION
NO LINGUISTIC DESCRIPTION	E PLACES HAT ON S'S FOOT.	E PICKS UP HAT, POINTS TO HAT AND THEN POINTS TO S'S FOOT.
ACTION LABEL	E PLACES HAT ON S'S FOOT AND SAYS, "SEE THIS. LET'S PUT THIS ON YOUR FOOT."	E PICKS UP HAT, POINTS TO HAT AND S'S FOOT AND SAYS, "SEE THIS. PUT THIS ON YOUR FOOT."
ACTION LABEL PLUS OBJECT LABEL	E PLACES HAT ON S'S FOOT AND SAYS, "SEE THIS SHOE. LET'S PUT THIS SHOE ON YOUR FOOT."	E PICKS UP HAT, POINTS TO HAT AND S'S FOOT AND SAYS, "SEE THIS SHOE. PUT THIS SHOE ON YOUR FOOT."

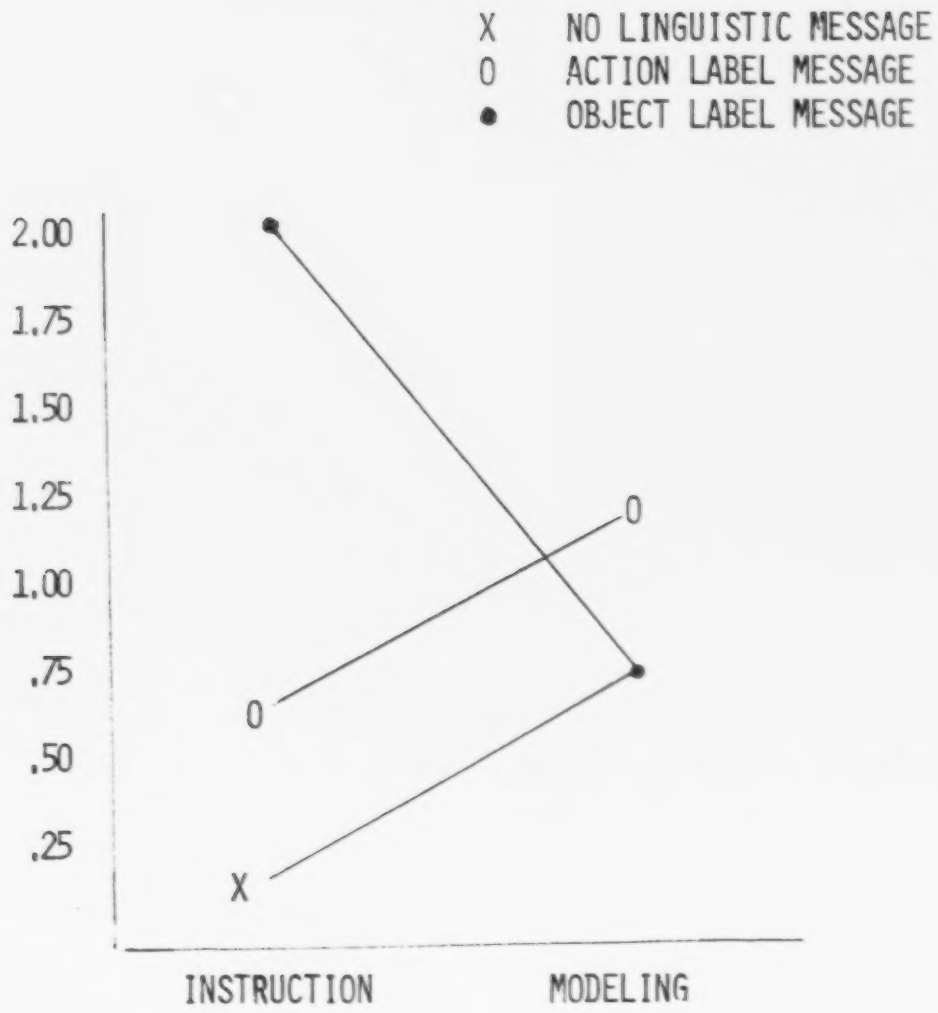

FIGURE 1. MEAN NUMBER OF CONVENTIONAL PRETEND ACTIONS IN TRIAL 1.

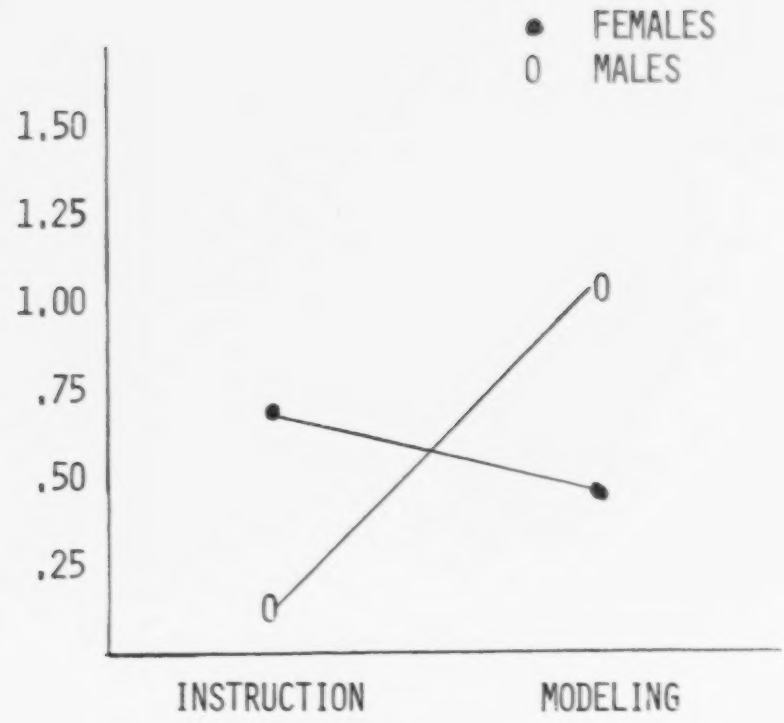

FIGURE 2. MEAN NUMBER OF COUNTERCONVENTIONAL PRETEND ACTIONS IN TRIAL 1 AS A FUNCTION OF TEACHING METHOD AND THE SEX OF THE INFANT.

RESULTS

1. WHEN THE ADULT DID NOT SPEAK, MODELING A FAMILIAR PRETEND TASK WAS MORE EFFECTIVE THAN A NONVERBAL INSTRUCTION.
2. WHEN THE ADULT PROVIDED A PARTIAL LINGUISTIC DESCRIPTION (ACTION LABEL PLUS PRONOUN LABEL) AN INSTRUCTION TO PERFORM A FAMILIAR PRETEND TASK WAS AS EFFECTIVE AS MODELING.
3. WHEN THE ADULT PROVIDED A COMPLETE LINGUISTIC DESCRIPTION (ACTION LABEL PLUS OBJECT LABEL), ASKING INFANTS TO PERFORM A FAMILIAR TASK WAS MORE EFFECTIVE (STATISTICAL TREND $P < .10$) THAN MODELING.
4. WHEN THE TODDLERS WERE TAUGHT THE NOVEL COUNTER-CONVENTIONAL TASK, MODELING WAS SIGNIFICANTLY MORE EFFECTIVE IN TEACHING A NEW SKILL FOR BOYS AND LESS EFFECTIVE IN TEACHING A NEW SKILL FOR GIRLS.
5. NO SIGNIFICANT EFFECTS WERE OBTAINED FOR GENERALIZED OR DELAYED PRETENSE.
6. PERFORMANCE ON THE CUED DELAYED MEMORY TASK FOR TODDLERS IN THE INSTRUCTION CONDITION WAS SIGNIFICANTLY RELATED TO THE PRECISENESS OF THE LINGUISTIC DESCRIPTION PROVIDED IN TRIAL 1.
7. RESULTS OF THE COVARIATE ANALYSIS REVEALED THAT MA AND CA WERE SIGNIFICANTLY RELATED TO PERFORMANCE ON THE MEMORY TASK.

CONCLUSIONS

1. THE RESULTS OF THIS STUDY HAVE REAFFIRMED THE IMPORTANCE OF THE LINGUISTIC ENVIRONMENT IN FACILITATING EARLY COGNITIVE DEVELOPMENT. THE STUDY HAS SHOWN THAT, AS EARLY AS THE SECOND YEAR OF LIFE, INFANTS USE LINGUISTIC INFORMATION AS WELL AS PHYSICAL MODELS TO INTERPRET AND REMEMBER EVENTS.

2. THE FINDINGS SUGGEST THAT INFANTS' DIFFERENTIAL RESPONSIVENESS TO MODELING AND INSTRUCTION MAY DEPEND ON THE INFANTS' SEX AND THE NATURE OF THE TASK. ALTHOUGH NO SEX DIFFERENCES WERE OBSERVED FOR INFANTS' PERFORMANCE OF A FAMILIAR PRETEND ACTION, MALES WERE SIGNIFICANTLY MORE LIKELY TO PERFORM A NOVEL COUNTERCONVENTIONAL TASK IF AN ADULT MODELED IT FOR THEM, WHEREAS GIRLS WERE SIGNIFICANTLY LESS LIKELY TO PERFORM A COUNTER-CONVENTIONAL TASK IF IT WERE MODELED FOR THEM.

3. THE FINDINGS OF THIS STUDY EMPHASIZE THE POWER OF THE SPOKEN WORD, EVEN TO INFANTS WHO ARE JUST BEGINNING TO SPEAK. SIMPLY ASKING AN INFANT TO DO SOMETHING IS OFTEN AS EFFECTIVE AS SHOWING THEM WHAT TO DO.